



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/US99/07868 (22) International Filing Date: 09 April 1999 (09.04.1999) (30) Priority Data: 09/287,917 07 April 1999 (07.04.1999) US 60/081,206 09 April 1998 (09.04.1998) US (60) Parent Application or Grant SDGI HOLDINGS, INC. [/]; O. BOYD, Lawrence, M. [/]; O. RAY, Eddie, F., III [/]; O. ESTES, Bradley, T. [/]; O. LIU, Mingyan [/]; O. BOYD, Lawrence, M. [/]; O. RAY, Eddie, F., III [/]; O. ESTES, Bradley, T. [/]; O. LIU, Mingyan [/]; O. LOWES, J., Andrew ; O.		Published
(54) Title: METHOD AND INSTRUMENTATION FOR VERTEBRAL INTERBODY FUSION (54) Titre: TECHNIQUE ET INSTRUMENTATION POUR ARTHRODESE INTERSOMATIQUE DU RACHIS		
(57) Abstract <p>A method and instrumentation particularly adapted for disc space preparation from an anterior approach to the spine. In one aspect, an expandable template (10) is provided having guides (26 and 24) to guide a cutting device (601) for bilateral formation of openings in the disc space. In another aspect, an improved guide member (450) is provided for guiding a cutting tool. Still further, the invention provides an improved double barrel guide sleeve (100) with a central distraction extension (116) and lateral non-distracting extensions (118 and 120). Optionally, the guide sleeve (100) includes windows (110 and 112) and a cover (160) to selectively cover the windows. An improved reamer (200) with an internal chamber (209) and optional modular coupling (254) is also provided. A depth stop (326) is provided to selectively engage a tool shaft (360) and a guide sleeve (370) to control tool penetration into the disc space. A method of using the disclosed instruments is also provided.</p>		
(57) Abrégé <p>Technique et instrumentation convenant notamment pour préparer l'espace intervertébral par abord antérieur du rachis. Dans l'un des aspects de l'invention, un gabarit extensible (10) comporte des guides (26, 24) destinés à guider un élément coupant (601) afin de former des ouvertures bilatérales dans l'espace intervertébral. Dans un autre aspect, un élément guide amélioré (450) permet de guider un outil coupant. L'invention concerne également un manchon de guidage (100) amélioré à deux tubes, qui comporte une extension distractive centrale (116) et des extensions non distractives latérales (118, 120). Eventuellement, le manchon de guidage (100) comporte des fenêtres (110, 112) et un couvercle (160) destiné à recouvrir sélectivement lesdites fenêtres. Le manchon peut comporter également un trépan aléseur (200) amélioré, comprenant une chambre interne (209) et éventuellement un dispositif de couplage modulaire (254). Une butée de profondeur (326) permet de bloquer sélectivement un manche d'outil (360) et un manchon de guidage (370), de façon à commander la pénétration dudit outil dans l'espace intervertébral. L'invention concerne également une technique qui permet d'utiliser lesdits instruments.</p>		

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(21) International Application Number: PCT/US99/07868 (22) International Filing Date: 9 April 1999 (09.04.99) (30) Priority Data: 60/081,206 9 April 1998 (09.04.98) US 09/287,917 7 April 1999 (07.04.99) US (71) Applicant (for all designated States except US): SDGI HOLDINGS, INC. [US/US]; Suite 508, 300 Delaware Avenue, Wilmington, DE 19801 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): BOYD, Lawrence, M. [US/US]; 688 S. McLean Boulevard, Memphis, TN 38104 (US). RAY, Eddie, F., III [US/US]; 8937 Bridlewood Lane, Cordova, TN 38018 (US). ESTES, Bradley, T. [US/US]; 5168 Terrytown Drive, Memphis, TN 38117 (US). LIU, Mingyan [CN/FR]; 41, rue de la Fontaine Grelot, F-92340 Bourg la Reine (FR). (74) Agents: LOWES, J., Andrew et al.; Woodard, Emhardt, Naughton, Moriarty & McNett, Bank One Center/Tower, Suite 3700, 111 Monument Circle, Indianapolis, IN 46204 (US).			(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments. (88) Date of publication of the international search report: 13 January 2000 (13.01.00)
(54) Title: METHOD AND INSTRUMENTATION FOR VERTEBRAL INTERBODY FUSION			
(57) Abstract <p>A method and instrumentation particularly adapted for disc space preparation from an anterior approach to the spine. In one aspect, an expandable template (10) is provided having guides (26 and 24) to guide a cutting device (601) for bilateral formation of openings in the disc space. In another aspect, an improved guide member (450) is provided for guiding a cutting tool. Still further, the invention provides an improved double barrel guide sleeve (100) with a central distraction extension (116) and lateral non-distracting extensions (118 and 120). Optionally, the guide sleeve (100) includes windows (110 and 112) and a cover (160) to selectively cover the windows. An improved reamer (200) with an internal chamber (209) and optional modular coupling (254) is also provided. A depth stop (326) is provided to selectively engage a tool shaft (360) and a guide sleeve (370) to control tool penetration into the disc space. A method of using the disclosed instruments is also provided.</p>			

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INTERNATIONAL SEARCH REPORT

Internat. Application No.
PCT/US 99/07868

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 A61B17/17 A61B17/16 A61B19/00 B23D77/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A61B A61F A61C B23B B23D B25B A61M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 055 104 A (C.D.RAY) 8 October 1991 (1991-10-08) column 4, line 18 - line 23; figures 8,9	1,36
A	EP 0 739 614 A (DANEK MEDICAL) 30 October 1996 (1996-10-30) column 3, line 28 -column 4, line 5; figures 11A-13B	1,36
A	WO 94 17759 A (SPINE-TECH) 18 August 1994 (1994-08-18) page 28, line 25 - line 29; figure 49A page 11, line 12 - line 31; figure 28 page 21, line 20 -page 22, line 13	1,8-10, 36
X	US 5 632 747 A (N.SCARBOROUGH AND J.W.MORRIS) 27 May 1997 (1997-05-27) column 4, line 4 - line 27; figures 1,4	6
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

17 November 1999

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International Application No.
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/07868

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 37-38
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-5,36

Templates with parts movable out of alignment

2. Claims: 6-7

Guide for rotary cutting tool

3. Claims: 8-10

Distractor with choice of two distraction heights

4. Claims: 11-26

Double-barrelled guide sleeves

5. Claims: 27-29

Reamer with chamber and communicating channel

6. Claims: 30-32

Depth stop for tool shaft

7. Claims: 33-35

Modular cutting tool

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Information on patent family members

International Application No
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